



## SEQUENCE LISTING

<110> TANAKA, YOSHIKAZU  
ONO, EIICHIRO  
NAKAMURA, NORIKO  
MIZUTANI, MASAKO

<120> METHOD FOR PRODUCING YELLOW FLOWER BY CONTROLLING  
FLAVONOID SYNTHETIC PATHWAY

<130> 47237.5008/00US

<140> 10/583,110

<141> 2006-06-15

<150> PCT/JP2004/019461

<151> 2004-12-17

<150> JP 2003-420046

<151> 2003-12-17

<160> 70

<170> PatentIn Ver. 3.3

<210> 1

<211> 1422

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (1)..(1371)

<220>

<223> Description of Artificial Sequence: Synthetic  
nucleotide construct

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1 5 10 15	

gaa gaa cac ctc aac tct tca ata gcc ctt gca aag ttc ata acc aaa	96
Glu Glu His Leu Asn Ser Ser Ile Ala Leu Ala Lys Phe Ile Thr Lys	
20 25 30	

cac cac tct tca atc tcc atc act atc atc agc act gcc ccc gcc gaa	144
His His Ser Ser Ile Ser Ile Thr Ile Ile Ser Thr Ala Pro Ala Glu	
35 40 45	

tct tct gaa gtg gcc aaa att att aat aat ccg tca ata act tac cgc	192
Ser Ser Glu Val Ala Lys Ile Ile Asn Asn Pro Ser Ile Thr Tyr Arg	
50 55 60	

ggc ctc acc gcg gta gcg ctc cct gaa aat ctc acc agt aac att aat	240
Gly Leu Thr Ala Val Ala Leu Pro Glu Asn Leu Thr Ser Asn Ile Asn	
65 70 75 80	

aaa aac ccc gtc gaa ctt ttc ttc gaa atc cct cgt cta caa aac gcc	288
Lys Asn Pro Val Glu Leu Phe Phe Glu Ile Pro Arg Leu Gln Asn Ala	
85 90 95	
aac ctt cga gag gct tta cta gat att tcg cga aaa tcc gat atc aaa	336
Asn Leu Arg Glu Ala Leu Leu Asp Ile Ser Arg Lys Ser Asp Ile Lys	
100 105 110	
gca tta atc atc gat ttc ttc tgc aat gcg gca ttt gaa gta tcc acc	384
Ala Leu Ile Ile Asp Phe Phe Cys Asn Ala Ala Phe Glu Val Ser Thr	
115 120 125	
agc atg aac ata ccc act tac ttc gac gtc agt ggc ggc gct ttt ctc	432
Ser Met Asn Ile Pro Thr Tyr Phe Asp Val Ser Gly Gly Ala Phe Leu	
130 135 140	
ctc tgc acg ttt ctc cac cac ccg aca cta cac caa act gtt cgt gga	480
Leu Cys Thr Phe Leu His His Pro Thr Leu His Gln Thr Val Arg Gly	
145 150 155 160	
gac att gcg gat ttg aac gat tct gtt gag atg ccc ggg ttc cca ttg	528
Asp Ile Ala Asp Leu Asn Asp Ser Val Glu Met Pro Gly Phe Pro Leu	
165 170 175	
att cac tcc tct gat tta cca atg agt ttg ttt tat cgt aag act aat	576
Ile His Ser Ser Asp Leu Pro Met Ser Leu Phe Tyr Arg Lys Thr Asn	
180 185 190	
gtt tac aaa cac ttt cta gac act tcc tta aac atg cgc aaa tcg agt	624
Val Tyr Lys His Phe Leu Asp Thr Ser Leu Asn Met Arg Lys Ser Ser	
195 200 205	
ggg ata ctc gtg aac acg ttt gtt gcg ctc gag ttt cga gct aag gaa	672
Gly Ile Leu Val Asn Thr Phe Val Ala Leu Glu Phe Arg Ala Lys Glu	
210 215 220	
gct ttg tcc aac ggt ttg tac ggt cca act ccg cct ctt tat tta ctt	720
Ala Leu Ser Asn Gly Leu Tyr Gly Pro Thr Pro Pro Leu Tyr Leu Leu	
225 230 235 240	
tca cat aca att gcc gaa ccc cac gac act aaa gtg ttg gta aac caa	768
Ser His Thr Ile Ala Glu Pro His Asp Thr Lys Val Leu Val Asn Gln	
245 250 255	
cac gaa tgc cta tca tgg ctt gat ttg cag cct agt aaa agc gtg att	816
His Glu Cys Leu Ser Trp Leu Asp Leu Gln Pro Ser Lys Ser Val Ile	
260 265 270	
ttc ctt tgt ttc gga aga aga gga gcg ttc tca gca caa cag ttg aaa	864
Phe Leu Cys Phe Gly Arg Arg Gly Ala Phe Ser Ala Gln Gln Leu Lys	
275 280 285	
gaa att gcg ata ggg ttg gag aag agt gga tgt cga ttt ctt tgg ttg	912
Glu Ile Ala Ile Gly Leu Glu Lys Ser Gly Cys Arg Phe Leu Trp Leu	
290 295 300	

gcc cgc att tca ccg gag atg gac tta aat gcg ctt ctg ccg gag ggt 960  
 Ala Arg Ile Ser Pro Glu Met Asp Leu Asn Ala Leu Leu Pro Glu Gly  
 305 310 315 320  
  
 ttt cta tcg aga act aaa gga gta ggg ttt gtg aca aac aca tgg gtg 1008  
 Phe Leu Ser Arg Thr Lys Gly Val Gly Phe Val Thr Asn Thr Trp Val  
 325 330 335  
  
 ccg caa aaa gag gtg ttg agt cat gat gca gtg ggg ggg ttt gtg act 1056  
 Pro Gln Lys Glu Val Leu Ser His Asp Ala Val Gly Gly Phe Val Thr  
 340 345 350  
  
 cat tgc ggg tgg agt tcg gtt ctt gaa gcg ctg tcg ttc ggt gtc ccg 1104  
 His Cys Gly Trp Ser Ser Val Leu Glu Ala Leu Ser Phe Gly Val Pro  
 355 360 365  
  
 atg att ggt tgg ccg ttg tac gca gag cag agg atc aat agg gtg ttc 1152  
 Met Ile Gly Trp Pro Leu Tyr Ala Glu Gln Arg Ile Asn Arg Val Phe  
 370 375 380  
  
 atg gtg gag gaa ata aag gtg gcg ctg cca ttg gat gag gaa gat gga 1200  
 Met Val Glu Glu Ile Lys Val Ala Leu Pro Leu Asp Glu Glu Asp Gly  
 385 390 395 400  
  
 ttt gtg acg gcg atg gag ttg gag aag cgc gtc agg gag ttg atg gag 1248  
 Phe Val Thr Ala Met Glu Leu Glu Lys Arg Val Arg Glu Leu Met Glu  
 405 410 415  
  
 tcg gta aag ggg aaa gaa gtg aag cgc cgt gtg gcg gaa ttg aaa atc 1296  
 Ser Val Lys Gly Lys Glu Val Lys Arg Arg Val Ala Glu Leu Lys Ile  
 420 425 430  
  
 tct aca aag gca gcc gtg agt aaa ggt gga tcg tcc ttg gct tct ttg 1344  
 Ser Thr Lys Ala Ala Val Ser Lys Gly Gly Ser Ser Leu Ala Ser Leu  
 435 440 445  
  
 gag aag ttc atc aac tcg gtc act cgt taaagtttct tactcaatat 1391  
 Glu Lys Phe Ile Asn Ser Val Thr Arg  
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<210> 2

<211> 457

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic protein

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Glu Glu His Leu Asn Ser Ser Ile Ala Leu Ala Lys Phe Ile Thr Lys  
 20 25 30

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		35					40					45					
Ser	Ser	Glu	Val	Ala	Lys	Ile	Ile	Asn	Asn	Pro	Ser	Ile	Thr	Tyr	Arg		
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Gly	Leu	Thr	Ala	Val	Ala	Leu	Pro	Glu	Asn	Leu	Thr	Ser	Asn	Ile	Asn		
65					70					75					80		
Lys	Asn	Pro	Val	Glu	Leu	Phe	Phe	Glu	Ile	Pro	Arg	Leu	Gln	Asn	Ala		
				85					90					95			
Asn	Leu	Arg	Glu	Ala	Leu	Leu	Asp	Ile	Ser	Arg	Lys	Ser	Asp	Ile	Lys		
			100					105					110				
Ala	Leu	Ile	Ile	Asp	Phe	Phe	Cys	Asn	Ala	Ala	Phe	Glu	Val	Ser	Thr		
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Ser	Met	Asn	Ile	Pro	Thr	Tyr	Phe	Asp	Val	Ser	Gly	Gly	Ala	Phe	Leu		
	130					135					140						
Leu	Cys	Thr	Phe	Leu	His	His	Pro	Thr	Leu	His	Gln	Thr	Val	Arg	Gly		
145					150					155					160		
Asp	Ile	Ala	Asp	Leu	Asn	Asp	Ser	Val	Glu	Met	Pro	Gly	Phe	Pro	Leu		
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Ile	His	Ser	Ser	Asp	Leu	Pro	Met	Ser	Leu	Phe	Tyr	Arg	Lys	Thr	Asn		
			180					185					190				
Val	Tyr	Lys	His	Phe	Leu	Asp	Thr	Ser	Leu	Asn	Met	Arg	Lys	Ser	Ser		
		195					200					205					
Gly	Ile	Leu	Val	Asn	Thr	Phe	Val	Ala	Leu	Glu	Phe	Arg	Ala	Lys	Glu		
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Ala	Leu	Ser	Asn	Gly	Leu	Tyr	Gly	Pro	Thr	Pro	Pro	Leu	Tyr	Leu	Leu		
225					230					235					240		
Ser	His	Thr	Ile	Ala	Glu	Pro	His	Asp	Thr	Lys	Val	Leu	Val	Asn	Gln		
				245					250					255			
His	Glu	Cys	Leu	Ser	Trp	Leu	Asp	Leu	Gln	Pro	Ser	Lys	Ser	Val	Ile		
			260					265					270				
Phe	Leu	Cys	Phe	Gly	Arg	Arg	Gly	Ala	Phe	Ser	Ala	Gln	Gln	Leu	Lys		
		275					280					285					
Glu	Ile	Ala	Ile	Gly	Leu	Glu	Lys	Ser	Gly	Cys	Arg	Phe	Leu	Trp	Leu		
	290					295					300						
Ala	Arg	Ile	Ser	Pro	Glu	Met	Asp	Leu	Asn	Ala	Leu	Leu	Pro	Glu	Gly		
305					310					315					320		
Phe	Leu	Ser	Arg	Thr	Lys	Gly	Val	Gly	Phe	Val	Thr	Asn	Thr	Trp	Val		
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Pro Gln Lys Glu Val Leu Ser His Asp Ala Val Gly Gly Phe Val Thr  
                   340                                  345                                  350

His Cys Gly Trp Ser Ser Val Leu Glu Ala Leu Ser Phe Gly Val Pro  
                   355                                  360                                  365

Met Ile Gly Trp Pro Leu Tyr Ala Glu Gln Arg Ile Asn Arg Val Phe  
                   370                                  375                                  380

Met Val Glu Glu Ile Lys Val Ala Leu Pro Leu Asp Glu Glu Asp Gly  
                   385                                  390                                  395                                  400

Phe Val Thr Ala Met Glu Leu Glu Lys Arg Val Arg Glu Leu Met Glu  
                                   405                                  410                                  415

Ser Val Lys Gly Lys Glu Val Lys Arg Arg Val Ala Glu Leu Lys Ile  
                   420                                  425                                  430

Ser Thr Lys Ala Ala Val Ser Lys Gly Gly Ser Ser Leu Ala Ser Leu  
                   435                                  440                                  445

Glu Lys Phe Ile Asn Ser Val Thr Arg  
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<210> 3

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
                   primer

<400> 3

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21

<210> 4

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
                   primer

<400> 4

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21

<210> 5

<211> 24

<212> DNA

<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic primer  
  
 <400> 5  
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 <210> 6  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic primer  
  
 <400> 6  
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 <210> 7  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic primer  
  
 <400> 7  
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 <210> 8  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic primer  
  
 <400> 8  
 ctctcactct cacacccg 18  
  
 <210> 9  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic primer  
  
 <400> 9  
 cacgaatgct tagcatggct c 21

<210> 10  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 10  
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<210> 11  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 11  
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<210> 12  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 12  
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<210> 13  
 <211> 1446  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 nucleotide construct

<400> 13  
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 gccttcgctg atccgataaa caaagctcgt gattcggggc tcgatatattgg actaagcatc 180  
 ctcaaattcc caccagaagg atcaggaata ccagatcaca tggtaggcct tgatctagtt 240  
 actgaagatt ggctcccaaa gtttggtgag tcattagtct tattacaaga gccagttgag 300  
 aagcttatcg aagaactaaa gctcgactgt ctcgtttccg acatgttctt gccttgagaca 360  
 gtcgattgtg cggctaagtt cggatttccg aggttggttt tccacggaac gagcaacttt 420

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gcgttgtgtg cttcgagca aatgaagctt cacaagcctt ataagaatgt aacttctgat 480
actgagacat ttgttatacc ggatttcccg catgagctga agtttgtgag gactcaagtg 540
gctccgtttc agcttgccga aacggagaat ggattctcaa agttgatgaa acagatgacg 600
gagtctgttg gtagaagcta cgggtgtgtg gttaacagtt tttatgagct cgagtcgact 660
tatgtggatt attacagaga ggttttgggt agaaagtctt ggaatatagg gcctctgttg 720
ttatccaaca atggcaatga ggaaaaagta caaaggggaa aggaatctgc gattggcgaa 780
cacgaatgct tggcttggtt gaattccaag aagcagaatt cggttggtta cgtttgtttt 840
ggaagtatgg cgacttttac tccagcgag ttgcgcgaaa ctgcgattgg actcgaggaa 900
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cattgtggat ggaattcgac gttggaagga atatgcgcg gtgtgcctat ggtgacttgg 1140
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gtttcggttg ggaataagaa gtggctaagg gcagcaagtg aagggtgtgtc gagggaggca 1260
gtgacgaacg cgggtgcagcg tgttatgggt ggagaaaatg cgtcggagat gagaaagcga 1320
gcgaagtatt ataaggaaat ggcgagggcg gcggttgagg aaggcggttc gtcttataat 1380
ggtttgaatg agatgataga ggatttgagt gtgtaccgtg ctccagaaaa acaagactta 1440
aactag

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<210> 14

<211> 1488

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
nucleotide construct

<400> 14

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acgatcatcg taacacctct taacgccgca cgattcaatt ccgttattaa tcgagccgtt 180
gaatcaggac agtccattcg tcttctccaa gtaaaattcc ctggtgaaga agccgggttg 240
ccacctggtat gcgaaagcgc cgagacttta ccattcttatg aattgattcc aaattttttt 300
accgcccgtaa aaatgtttaca acaaccaatc gaggaagaat tgagaaattt gatcccttta 360
ccaagctgcg tcattttgtg taaacacata ccctggactg ctcaaacgtg caagaatctc 420
cgaattccga ggataatttt cgatggaatg agctgttttg ctcccttagt aacacacgtt 480
ctctacgtgt ctaaggttca tgaaaccgtt cctccaaacg agccgttcgt tgttcctgat 540
ttccccgatg agatagagtt aacgaggttt caattgccag ggttggtgaa tccaagtcca 600
aggataaatt tttacgattt tcgcgaacaa gtgaagaaaa ctgaggagga ggcttatggg 660
gtggtggtga acagttttga ggagctggaa aaagattatt tcgagatgtt tcggaattg 720
aaagggggtg aagtttggtg tgttgggcct ttgtcgcttt atggtaacga cgatttggac 780
agggtctgga gaggggaataa ggcgtcgatt gatacggatc ggtgatgaa atggcttgat 840
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gtcgtggcag ttatggatag aggaactgaa ggggtgtgaga ggccgagaaa ggccaaggag 1380
cttgggtgaaa tggctaagag ggcagtccaa gttgggggat cttcatgtaa gaatgtcgac 1440
cagctaattc aagaagttgc accattgagt gtagcgaggg atgtgtaa 1488

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<210> 15  
 <211> 1446  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 nucleotide construct

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 cacataacct tcgtcaacac cgagtacatc cgtctccgcc tcctcaagtc ctgtggccct 180  
 gccgccctgg acgggctacc ggactttcgc ttcattgacta tccccgatgg cctccctttg 240  
 tcggacgacg tttcgcgtga tgtcgccttc atttctgtct ctactaacia aacttgctta 300  
 gaaccctttt gtgaggtgct atcggacctc atggataatg gttccaaccc gccggtgagc 360  
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 ccagaggtgc tgttctggac gcccgctgct tgtggcatct tagctttcac gcagtataag 480  
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 gacgccaccc cgaaagccaa tgctgtgac atcaacacgt tcgacacatt ggaaagtgc 720  
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 tggaattcga cgattgaaag catttgcagc ggcgtgccaa tgatttggtg gccttactac 1200  
 gctgagcagc aaaccaactg taggtacagt tgtgtggaat gggaaatagg aatggagatc 1260  
 attgacaacg atgtgaagag agatgaggtg gaattgctgg tgattaagtt gatggatggt 1320  
 atcaagggaa agaaaatgaa aaagaaagct atggagtggg agaggaaagc agaagaggcg 1380  
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 ccataa 1446

<210> 16  
 <211> 1458  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 nucleotide construct

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 gttcaccttg aatttatcca ccaaagtgtg tctaaagccc ataacgccac taaaactgaa 180  
 gcagatttat tttcgggaagc acgagaatcc ggtctcgaca tacgttacac aacgattgac 240  
 gatggtttcc ctttggaatt cgacagggtc ctccactccg aggagtattg gcactccatg 300  
 ttgcgagatt tcccgttaca cgtcgtgag tttgttcgaa aagtcgtgga gtcagagcca 360  
 ttttttagagc actttttggt tacggatact atgtatacat ggccgtgcaac cattgcaaag 420  
 aaacataatc ttgtgaatat ttcgttttgg actgaaccag ccctgggtgtt ttctttgtct 480  
 taccatataa accttctgaa gcaaaatggt cattttccat gtaaagaaaa tattgatgag 540  
 gaaataaatt acgtaccagg agttgattca ataagtacaa gggatttaat gtcttatttt 600  
 aaagaacagc gatcagaaac attagagaaa aatgttgtgc tcaaggcatt tgaaggagtg 660

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aagaaagctg atttcatctt gcataacaca ttgcaagaac tagaatctga gacactctca 720
gctcttacca aaatgcagcc aaattacgcc gttggacctt ttaatttctc caaacatact 780
cctaaaactg tcaccaagag tctacggtct gaattcgact gcaccaactg gctcgactct 840
aagcctccca actctatctt atacgtctcg tttggtagtt ttattcagac aagcaaagag 900
gtaattgaag aaatcgctta cggctcttct cttagtgaag ttaactttat atgggtggtt 960
agaacagata gtgtgagttt agaggataac gaggttttgc cggttggatt tagggatgag 1020
gttaaagata gggggttgat agttccgtgg tgtgatcaaa ttacggtttt gtctaatacg 1080
gcggttgagg gattcttgac gcattgtgga tggaaactcg tattagagag tatgtggtgt 1140
ggcgttccta tgatttggtt tccgttaaca tatgatcaac ctactaatag gaaactattg 1200
gttgatgatt ggaagattgg cattaatctt tgcgacggag cgttgattaa tagaaaagaa 1260
attgcagaga agattaaggc cttgatgagt gaaagtactt cagaggggtt gagggaagaa 1320
tctgagaaaag ttaagggctt gttgaagaat gcactggaag ttggtggttc atcagagaag 1380
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<210> 17

<211> 1443

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
nucleotide construct

<400> 17

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atgggttcca cagccgaaaa taaacagaaa acccacattg tgtgcatacc ctaccagacc 60
caggggcaca tcagcccat gctaaagtta gccaaactgc tacaccaaaa cggcttttac 120
atcacttttg tcaacacgga gtacaaccac cgccgcctca tcaagtcctg cggccccacc 180
gccctcgacg gattgcccg tttccggttc gttacgatcc ccgacgggct tcctttctct 240
gaagccgacg ccacacagga tatcccttct ctttgtgttt caaccaccaa cacttgcttg 300
gagccctttt gcgagctgct gtcgaacctc aataactcgg gcccgacgt gccccgggtg 360
agctgcatcg tatccgatgg tgtcatgagc ttcacgttga aggcggcgga gagatttggg 420
ctgccggagg tgctgttctg gacgacgagt gcgtgtgggt tcttggcgta tacgcagtat 480
aagcatctcg tggagaaagg ctatgtacct ctcaaagata tgagccaagt aacggatgga 540
tatttgaaaa caagcatgga ctggattcca ggaacgaagg acatccaact aagggaattc 600
ccctctttca tcaggacaac agatccagaa gacatcatgc ttaatttttt aatacaagaa 660
actgatgttg ttccgagagc caaagctgta ataatacaac ccttcgacat gttagaacac 720
gacgtcctgg aagcgtctct caccatgttt tcacgcgttt acagcatcgg ccctcttcag 780
ctgatgatga attatgttca caacgagtec cttaaatacca tcagttccag tctatggaaa 840
gaagaaacac attgcgtcga ttggctcgat tcaaaggagc ccgaatccgt tgtgtacgta 900
aattttggca gcataactgt cgtgactgca gaacaactga ctgagtttgc gtgggggctc 960
gctaatagta agaagacttt cctatgggtt attaggcctg atatagttgc tggagactcg 1020
gctatgctgc cccctgaatt cgtgacgggg acaaaagata gaagcatgtt aatcagctgg 1080
tgtaaccaag aacaggtgtt gaatcaccca tcaattggag ggtttttgac gcacagtggg 1140
tggaaattcga cgattgaaag tatagtcgag ggagttcctg tgatttgctg gcctttcttt 1200
gctgagcagc aaacaaattg taggttcagt tgcgtggaat gggaaatagg aatggagatt 1260
gataataatg tgaagagaga tgaggttgaa gttttggtga ggggaattgat ggatggagag 1320
agggggaaga aaatgaagga gaaagctatg gagtggaaag ggaaagcatt agaggcaact 1380
gcacttgggg gctcttccta cttgaacttg gaaaaactaa ttaaggaggt gcttttgcatt 1440
taa                                     1443

```

<210> 18

<211> 1407

<212> DNA

<213> Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
nucleotide construct

&lt;400&gt; 18

```

atggcatctt ctccccataa ccagccaacc acgccccgcc acgtggtggc cctaccctac 60
cccggccgcg gccacataaa ccccatgctc aacatctgca aagccgtagc ggagaagagc 120
agccacatca acataacaat catcctaacc gaggaatggc tcggcttaat cggctcagcc 180
gacaagccgc cgaacataag ctacgccgcg ataccgaaca ttctgccgtc ggagcacgtt 240
cgcggcgagg atccacatgg tttttgggcg gctgtttggc agaagatgga ggagccggtt 300
gatcggctgc tggacgagct tcggcttaat aataacaagc cggagtttgt gatagccgat 360
gctttcttgc attgggcggc tgacgtggcg ggcaggagga atattccctt ggcattctgtt 420
tggccaatgt cggcgtccac gtacacgggtg ctttaccact ttgaccttct cgttgaccac 480
ggacactttc cgatcgacat accagtgaat ggagatgcta ttgtggatta catcccggga 540
ctccctccag ttcgcgctgc agattttcca aaagacataa gaaaacaaga agacgcatcc 600
ttcgtcctta aactcattcc caactcacca aaattcatca tcttcacttc aatttacgac 660
ctcgaatcca agatcatcga cgctctaaag caaaaatctt ccttctcaat ctacaacatt 720
ggtcctcatg cttcctattc caaactcaaa cacatcctca actcggataa aatcacgaaa 780
cctgatcaag ataaccocga ctacttaaaa tggttagatc tccaacctcc caactccgtc 840
ttgtacattt cactcggcag tttcctatcc atttcgcgag cccaaatgga tgaactcgca 900
accggaatac gaaactctgg tgtccgcttt ttgtgggtgg cacgtggcga aacaaaccgg 960
ttgaaagaga tttgttgtga tcatgaaaag gggctgatca tagaatggtg cgatcaaatt 1020
caggttcttt ctcatcttcc ggttggtgga ttcttgctgc attgtggttg gaattcgact 1080
aaagaggcgt tgatggccgg ggtgccgttt ttgactatcc caattatgtt tgatcaagtg 1140
tctaacgcga aggcggctcg ggaagattgg aggggtgggt ggagggtggt gaatgagttt 1200
aatgaagaag agttggtggg aggagatgag attgcgaata ttgtgaggag gtttatggat 1260
atggaatatg gtgagaggaa agagttagcg aaaaatgtga aagagggtga gaagatttgt 1320
gcgagagagt tcgaagatgg agatggacag tcgtttgagt ttaatgttga aagtttggtt 1380
caattgatcc tgcaattggg tccgtaa 1407

```

&lt;210&gt; 19

&lt;211&gt; 1428

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
nucleotide construct

&lt;400&gt; 19

```

atgaacaaca caaccaca acaaacagta gcattagcac tagcacctca ctgtttaatc 60
gtccatttcc cattccaagg ccacattaac cccttactcc aattcgccaa acgcctcata 120
actcaccaca aaaaaaacct ccaaatcaca ttgcactca ccaaatcat cctcaccaac 180
ctctcctccg gtgccggaga atcatccttc tctctccggt caatctccga cggcttcgac 240
gccggcggcc gcgctcaggc caactccggc gccgaatacc tctccaaatt ccgcgagatc 300
ggatctcaaa ccctaaccga acttatccaa gacctatccg aatcgggtcg acccgttgac 360
tgcgtggtct acgaccggtt cgtaccttgg gccttagatg ttgccaaggg taaattcgga 420
atttcaacgg cggcggtttt tacgcagtcg tgtgcggtgg ataatatata cagtcgggtt 480
tataacggcg atttgagct gccgttgccg gagaatgagg tggttagggt tccgggtttg 540
ccggagatgg agccgtttga gatgccgagc tttgtgtatt taaacgggtc gtaccgctcg 600
agttttgaga tggttgtggg tcagttagg aatgttgatg aggcggattg ggtttttgtc 660
aacacttttt atgagttgga gaaagaggtc attgactgga tgtcaaaatc ttggcgagt 720
aaagcaattg gacctaccat accatcaatg ttcatggaca agagattgca agaggacaaa 780
tcatacggtc ttagcatgtt caagcatata acaaatgact gcataaattg gctcaacgga 840
aaacaatcaa aatccgtcat ttatgtcgca ttggaagtc ttgcagaatt atcccacgac 900
caactcaag aactggcaca cgccttaaca acctacgaca aacacttctt atgggttgta 960
cgatcatcgg aagaagctaa gcttcccaa aattttgcta acgaaacatc taagaaaggg 1020

```

```

ttgatagtgt cgtggtgccc tcaattagag gtcttgtcgc acgaggccat cggttggttc 1080
gtgactcatt gtggttgga ttcaacgctc gagggattga gtttgggggt gcctatggtg 1140
gcgatgccac agtggacgga tcagagtacg aacgctaagt ttatcgtgga tgtttgggggt 1200
gtgggtgttc gggctaagggt ggacgagggg ggattagcga ggcaagatga gatagtctgt 1260
tgcttaggga gcgtcatgga aggggagaac ggagaaaaga taagaaagaa tgcgaatgaa 1320
tggaaggaac gggcgtgcaa tgcagttgat gaagggggga gttcagacaa aaatattgaa 1380
gaatttgtaa ctacgttgat aagttcccat gacttgcgtc aagagtaa 1428

```

<210> 20

<211> 1425

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic nucleotide construct

<220>

<221> modified\_base

<222> (1349)

<223> a, t, c, g, unknown or other

<400> 20

```

atgtctagt agagccaaat aaacttagtg ttcattccctc tccctgtaaa gggacacatt 60
gtctcaacgc tagagacggc aaagctactc gtcgatcgaa acaaacgcct caccatcaca 120
atctcctca tgaagctgcc agtcgacgcc aaggtagatg attccttcac aaaaaatccc 180
tctgtctctc aaataacttt tgtacatctc cctcgaatcg agcacagttc catggaacca 240
ccgggaactc ccgaatcctt tgtacacagg ttcgtcgaga gccaaaaatg tctcgtgaaga 300
gatgcggtgg ttaaagcaac ggagggctca aaatcaaaca ggctagccgg atttgtaatc 360
gacatgttct gcaccccgat gattgatgtg gccaatgaat ttggcgtccc gacatacgtg 420
gctttcacgt ccggggccgc aactctcggg ctattgttcc atttgcagag tcttagagat 480
gaatttaatc aggacgtgaa ggagtagcag aactcggaag ttgagatata gatcccggct 540
tatgttaacc cgttcccttc caaatccttg ccgtctcctg tcttcaacga ggacggtggt 600
tttcttagtc ttgcaaagggt gttcagagag gctaaaggta tattgatcaa cactttttta 660
gaatttgaat cccatgccat taaatcgctc tccaacgatg cgagaatccc gcctgtttac 720
ccatcgggc cagtaattca cgccacggaa gataatgcaa acaaaggaaa gcaggacgaa 780
atcatcgctg ggcttgacga gcaacctgat tcatccgtcg tgtttctttg cttcggaagc 840
gctggatgct ttgaagaaaa tcaagtgaag gagattgcag tggcgctcga caaaagtgga 900
taccggtttt tatggtcatt gagaaagccg cctcccaaag aaaaagcgga gtttccaggg 960
gagtacaaag attttaatat agttttacca gaagggttct tacaacgtac gtccgggaga 1020
ggtaaggtaa taggatgggc tccgcagatg gccgtgttgt ctcacaatgc ggtgggagga 1080
ttcgtgtcgc attgcggtct gaactcgacg ttggagagtg tttggtgcgg agtgccaatg 1140
gccgtgtggc cattggcggc cgagcaacat gcgaacgcgt tccagttggt gaaggagttg 1200
ggaattgcgg tggagattaa gatggattat aggaagaaca gtggtgtgat tgtggaggca 1260
aaaatgattg agaaaggaat cagggagttg atggacccgg aaaatgagat aaggggtaat 1320
gtgaaaagtga tgaaaaagga gagtaggana gctgtcgtgg atggtgggac ttcttttgat 1380
tacttgatc gttttgttga aactgtcgtg aataatgttt tgtga 1425

```

<210> 21

<211> 1446

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic nucleotide construct

&lt;400&gt; 21

```

atgggtttccg tagccggaaa cagttacaaa cggcctcatg ctgtgtgcat acccttccccg 60
gcgcagggggc acatcaaccc catgctgaag ttggccaaac tcctccacca aaagggcttc 120
cacatcacat tcgtcaacac agagtacaac caccgcccgt tgctcaagtc cctcgcccc 180
gacgtctctg atggcttgcc ggatttccga ttcgcaacca tccccgacgg tcttctctcg 240
tctgacggcg acgtcactca ggatgttcct tctctttgta tgccaccac taacacttgc 300
ttggagccct ttaccgagtt gctgttgaaa ctcaataact ccggcccga cgtgccaccg 360
gtgacctgca tcgtctcgga tgggtgcatg agcttcacat tgaaggcggc ggagaggttt 420
gcgctgccgg aagtgtgtgt ctggacgacg agtgcggtg gtttcttggc gtacacgcag 480
tataagcgtc tcttgagaa aggctatgtc cctctcaaag atatgagcca gttaacaaat 540
agctatctgg aaacaaccct cgactgggtt ccaggaatga aggatatccg attaagggac 600
ttcccatcat tcatcaggac aacggatcca aaagacatca tgtacaattt cgtattacaa 660
gaaaccgacg ctgtctccag agccaaagct ctgatcatca acacctttca tacattggaa 720
cacgacgttg taaatgccct ctccaccatg tttccacgtg tttacaccat cggctctctt 780
cagctgatgt tggaccaagt tcatgacaag agccttaacg ccatcaactc caatctctgg 840
aaagaagaat cgcaatgcat cgattggctc aattcaaaag agcccgaatc cgttgtgtat 900
gtgaatttctg gtagtgtcac tgttgtgact gctcaacaac tgacggaatt tgcgtggggg 960
cttgcaaca gcaacaagac ttttttatgg gttattaggc ctgatatagt tgttgagagc 1020
tcggcaatgc tggcccttga attcttgacg gacacggaag acagaagcat gctaataagc 1080
tgggtgaacc aagaacaggt gttgaggcac ccttccatcc gaggattttt gacgcacagt 1140
ggttggaact cgacgcttga aagtattgtc agcggagtgc ctatgatatg ttggcctttc 1200
tttgctgagc aacagacaaa ttgtagggtc agttgcgtgg aatgggaaat aggaatggag 1260
attgacaata atgtgaagag agatgaggtt gaggtgctgg tgagagagtt gatggatggt 1320
gaaaagggga agaaaatgaa gaagaaagct atggagtggg agatgaaagc agaagcagca 1380
gctgcccctg ggggaccttc gtctttaaat ttggaaaaac ttattgagga ggtgcttttg 1440
caataa
1446

```

&lt;210&gt; 22

&lt;211&gt; 1308

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
nucleotide construct

&lt;400&gt; 22

```

atgaaggctc atgcagtgat gcttccttgc cccgtacaag ggcacttaaa tcctatgctg 60
aaactggcca aaatatgtga ttcaagaggc ttcttcatca cattcgtgaa cacggaattc 120
aatcacaatc gtctagtgcg tgcgagaggc cccgaatctg ttaaaggctc cgatgatttt 180
cagttcaaaa ccatacctga tggactaccg ccttttgata aggacgcaac gcaagacata 240
cctcaactgt gtgattctct tcaaaagaat ggtcttctc cattgttgga cctcattaaa 300
agtattaatg attcacggga ctgtccaaat gttacctgta tagtgattga tttggccatg 360
agtttcgctc ttgatgcggc cgaggtgttc aaaattccca cgggtgactt ttcgccaact 420
agtgccttgc gattcatggg gttttgcaat tatgaagagc ttgtgaatcg aggattgttt 480
ccacttaaa atgaaagtca aataactaat ggctatcttg ataccaaaact agactgggtg 540
ccagggatga agaacattag gctcagagat tttcctagtt tcatccgaac gactgatcca 600
gatgatatca tgggtgaactt catgattttt aacatgaaga atgcgcctcg tgcaaaggct 660
gtggtagtca acacattcga tgaattggag aaagatgtat tggaggccct aagtaaaaaa 720
tttgatcatg ttttttccat aggccactc caattgatgg agaaggcttt ccaaaagcct 780
gaggtaaaa ctataggatc aagcttgtgg aaagaagaca acacgtgcat cgcctggctc 840
aacggcaggg agccaaattc tgtgtgtgac gtgaactttg gaagcatcac agtggtgtca 900
cctcaacaac tattggagtt cgcatggggc ctagccaata gcaaccatta ctttttgggg 960
atcataaggc cagatttggt aagtggagaa tctgcgattt tatccgaaga gtactcaaag 1020
gaagttgaag ggcgggcgat gatggtgcgt tggctctctc aagagcaagt attggcccat 1080
ccttcggtag gtggattctt gacacattct ggctggaact cgactatcga aggaatgtca 1140

```

```

gaaggtgttc ctatgatttg ttggcctttt tttgctgacc aacagaccaa ttgtcggtat 1200
gcatgcacgg agtgggagat tggaatggag attgaaggag aggttacgag ggataaagtg 1260
gcggatttgg tgaaaatatt gatggaggag ggaaggggag agcgatga 1308

```

<210> 23

<211> 1506

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
nucleotide construct

<400> 23

```

atggccattc atgaacaaaa acctcacttt gtcctgttcc ctttcatggc acaaggccat 60
atgattoccca tggtagatat cgccagatta ctgcggaagc gcggtgtcac aatcaccatt 120
ctactcacac ccacaaatgc caacagggtc aaaacagtca ttgctcgtgc aatcgattca 180
ggactaaata tcaatgtcat ccacttcaaa tttccatccg ttgaggtcgg attgcccgaa 240
ggttgtgaga atttcgatat gtcacctgac atcaatggcg cattgcagtt tttcaaagcc 300
actttcatgt tacaagaaca ggtcgaagag ttgcttccaa agctcgagcc tcttccgagc 360
tgcctaattg ctgatatgtg ctttccatgg acaacaaatc ttgctttgaa gttaaattgt 420
ccaagaattg tgtttcacgg gacaagttgc ttttctctcc tatgtatgca cgtttttagga 480
acttctaagg atttcgaagg tgtgactaac gaaacggagt acttccttgt gcctggatta 540
ccagataaaa tcgaaataac caaaattcag cttaggggca cccttattca aatgaattca 600
gactggacga agtttcgtga tgaggtgcga gaggctgagg taaaagcatt tggaacgggtg 660
gccaatactt ttgaagattt ggaaccagag tatgtcaaag aatacagcag agttaaaaggc 720
aaaaaagtct ggtgcatagg tcctgtttca ttatgcaaca aagatggcat agacaaggcc 780
gaaagaggta acatggcttc aatcgacgca caccatttgt tgaagtggct caattcacac 840
gaacaaaagt ctgttattta cgtctgcctt ggaagcatat ctgcctcgc tacttcacaa 900
ctgatagagc ttggattggc tttagaagca tcaaacagac cttttatttg ggtagttaga 960
gatccatcac aagaacttaa aaaatggttt ttgaatgaga aatttgagga aagggtaaaag 1020
gatagaggcc ttttgatcaa cggttgggag cctcaagtgc tcatactttc ccatccatct 1080
gttgaggagg ttgtaacgca ctgcggctgg aactcgatgc ttgaaggggt tacttcaggc 1140
ttgccgatga taacgtggcc tgtatttgct gagcagtttt gtaatgaaaa gtttatttgt 1200
cacgtgatca agactgggat aagagtgggt gttgaagtgc ctatcatctt tggagatgaa 1260
gaaaagtcg gagttttgt gaagaatgat gagataaaga tggttataga taagttgatg 1320
gatggaggag aagagggaga agagagaaga gagagagctc aaaagcttgg agaaatggca 1380
aaaaaggcaa tggaggaggg tggttcttct tatcataatt tgacatcggg catgcaagat 1440
gtcatgatgc aacaagctaa taatggagat caatatgaag atggtgttac agttataaat 1500
acatga 1506

```

<210> 24

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
primer

<400> 24

gggggatcca tggctagtga gagccaaata

30

<210> 25  
 <211> 36  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 25  
 cccctcgagg gtacctcaca aaacattatt cacgac 36

<210> 26  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 26  
 atgggagaag aatacaagaa aaca 24

<210> 27  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 27  
 taaaatttgg tagttaaacc gatgta 26

<210> 28  
 <211> 1386  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 nucleotide construct

<400> 28  
 atgctgagcc tcgccaaaat tctgcaccaa aagggattcc atatcacttt cgttaacact 60  
 gaatttaacc atgaacgcct cctgagaacg agaggcccga attcccttga cgggttgcc 120  
 tcgtttcgat tcgagacaat tcccgcggt cttccgccat cagaccccga tgctacacaa 180  
 aacgttgcat tattgtttga gtccagcaca tccaaatgct tagctccatt cagggacctt 240  
 cttgctaagc taaaccacac cgacgtgccg ccagttactt gcatactatc cgacttaatc 300  
 atgagcttca ctcttgaagc tgctcaagag ctcagcatcc ctgatgtcct tttttggacc 360  
 gctagcgctt gtggatacct cgcttatgca cactatgcca cgcttattga aaaaggattt 420  
 acacctttca aagatacgag ttgcttgacc aatgggtatt tggataccgt tattgatgat 480  
 attcctagtc tggaaggcat acgtctgaga gacattccaa gttttatcag aacaactaat 540

```

ccagatgaca ttttgatgaa ctttgtgttg cgagaaacag agagagctag aaaagggttcc 600
gccgtaatct ttaacacggt cgagtgcctc gaggttgaag cattaaacgt acttttcatcc 660
atgttgccctc cagtttacac agttggaccc ctgcattttg ttgaaaagca tggttggtcac 720
aaaggattgg aggtgcttgg atcaaattta tggaaagaag agccaaaatg tctcgaatgg 780
cttgactccc aaattcccaa ctcagtgggt tacgttaatt ttggaagcat cgctgtcatg 840
acaactgacc aactgattga gttttcttgg ggtcttgcta atagcaacat atccttcttg 900
tggtattataa gacctgacct tgtctcaggg gaaaacgctg ttcttccacc cgaatttctc 960
gaagccacaa aagaaagagg gtgttttagca aattgggtgcc ctcaagagaa agttcttagc 1020
caccatcca tcagaggatt cttaactcac agcggatgga attcaactct tgagagcatt 1080
tgcagtggag ttccaatgat cagttggccg ttcttcgccc aacaacagac taactgttgg 1140
ttttgctgca caaatgggg cataggcata gagctagaca atgatgtcaa aagggataaa 1200
gtggaagacc ttgtgcgcga attgatgtct ggggataaag ggaaagagat tatgaaaatg 1260
gctatggagt ggaagaagct ggccgaagag tctgcccaga gtccatcttt taagaatcta 1320
gagaaagtga ttcatagaat gcttttacca ccactacaag tgtgggatcc taaggattcc 1380
acctaa
1386

```

<210> 29

<211> 1374

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
nucleotide construct

<400> 29

```

atggaggaca ctatcggttct ctacgcttca gcagagcacc ttaactccat gctactactc 60
ggcaaaactca tcaacaaaca ccaccccaca atctccgtcg ccattatcag caccgcccc 120
aacgccgcgc ctagttccgt cgccgacgtg gcgcccatat cttatcagca actcaaaccg 180
gccactctcc cttcggatct aacaaaaaac ccaatcgagc tcttcttcga aatcccacgt 240
ctacataatc ctaacttgct cgaagcgctg gaagaactgt cactaaaatc aaaagtaagg 300
gcattttgtga tagatttctt ttgcaatccc gcattttgagg ttctgactag cttgaacata 360
cccacttact totatgtcag cagcggcgcg tttgggetat gcgggttctt gcattttccg 420
acaatcgacg aaactgtcga aaaagacatc ggtgaactga acgatatctt ggagatcccg 480
ggttgccecc cggttttgtc ctcggtttt cggaaaggta tgttctttcg caagagtaac 540
acttaacagc attttttaga cacggcgaaa aacatgagga gagcgaaagg gatcgtggtg 600
aacgccttcg acgcgatgga gttccgagct aaagaagccc tcgtcaacaa tctgtgcgta 660
cccaattcgc caactcccc agttttctta gtcggcccat tggtcggagc aagcacaact 720
acgaaaacca caaacgaaca gcacgaatgc ttgaaatggc tggacgtgca gccagacaga 780
agcgtgatct tcttatgttt cggtaggagg ggtttgttct ccgcagacca attgaaggaa 840
atcgcaattg gtctggagaa cagcggccac aggttcctgt ggtccgtgcg ttgccacca 900
agtaagccta actcttataa cactgatccg gacctggacg agctcctgcc cgaggggttt 960
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gcggtgtcgt ttgggggtgc gatgatcggg tggccgatat acgcggagca gaggatgaat 1140
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ttcgtggcgc cggtggaatt ggagaagaga gtgaaggagt tgatggattc gaagaatggg 1260
agagcgggta ggcagagagt gaaggagatg aaagtggcgg ctgaggtggc ggttgaaaag 1320
ggtggttcgt cagttgtggc gttgcaacgc tttgttgata tgggtggtttc ttaa
1374

```

<210> 30

<211> 1362

<212> DNA

<213> Artificial Sequence



&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic nucleotide construct

&lt;400&gt; 30

```

atggaggcag acaaagaaaa tctcaagatt ttaatgttcc catggttggc tcatggtcat 60
atattttccat ttcttgagct agccaaaaga atcttgaagc gaaaaaactg gcacatatat 120
ttgtgtacca cagccataaa cttcagttct atcaacaact tcattgaaaa atataagttg 180
gagaactcaa tagaagtagt agaactccat atagaaccat cccctgaact tccacctcat 240
taccacacta caaagaattt gccacaagt ctcaattcta ccctattaaa ggccattcag 300
acgtcgaatt cgagcttctc agacatcatc agaacattga aacctgaact agtgatatat 360
gatgtgtttc aaccttgggc tgccaagatt gcttcctcac aaggatttcc tgctgtttat 420
ttttctagct ttggaggggc accattatca cttatgcac atcaccacac gtacggaaaa 480
cccgaatttc ccttccaagc aatagttgtt gaggacatcg aactggaaaag tttgctctct 540
ttgtttgatt tcttgtatgc caacatattt gaagtggatc aagattatct ttttggaat 600
ttcaagcaat cttgtgagct tgttttgta aagagtagta aagggttga gaggaagtac 660
atcgattatc tttcatcttt gtctcagaaa aaaatattac ctgttggacc actagtcaca 720
gttgacaata agaccaatga ggagaattcc gagatcatga attggttgag caagaaaaaa 780
caccattcaa ctgtctacat ttccttcggt agtgaatact tcctgtctaa agaagagatt 840
gaagagatag caaaagggtc tgagctttgt gatgttaact ttatatggat catcagattt 900
ccagttggag tgaccgttaa cttagaagaa acactgcctc aaggtttcct tcaaagggtg 960
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gagatagcga aggcgataaa gaaggtgatt gttgaggaca gtggagaaaag gctgcggcaa 1260
agagcttttag aattgagcga gaagatgaaa atggaagagg aaaatgagat ggatgaagta 1320
actgagcagc tgtgggagct ttgcttgacg aaaaaacggt aa 1362

```

&lt;210&gt; 31

&lt;211&gt; 1437

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic nucleotide construct

&lt;400&gt; 31

```

atggaacctc atatagttat attcccgttc atgtccaaag gccacacaat ccctctcctc 60
cacctctccc acctcctcct tagtcgcgga gtacgcgtaa cgatcttcac cactgcacaa 120
aaccaccctt tcatcgctca acatgtccca aaaacaaata atgttaccat cattgaccta 180
ccgttccctg ataacatccc tggaatttca ccaggaacgg agagcacgga caaactcccg 240
tcgatgtctc tcttcgtccc gttcgtgaac gccgctaaat cgatgcaacc gttcttcgaa 300
gatgagcttg agaaaattca ttcaggggtt agttgtgtta tatcggtgg ttttcttcat 360
tggacgctga aatcagcatc caagtccgga attccacgac tgagtttcta cggtatgagc 420
tactatgoot tgacaatttt tcgagtcgct atctcaaaca agttaatatc attgcacgag 480
tcaccgcacg aggcattcac cttacctagt tttccttggg ttaaaactcac tagagatcac 540
ttcgacaaac cacttgatca acgtgaacca aatgggtccgc aatttgactt tttcatggaa 600
gcaacgacag ctactgtgaa tagctatggt ttcttagtga atagcttcta tgagcttgaa 660
ccaactttcg cggattacta tgacaacaat tacaaacca aggcgtggag tgtcgggcct 720
ctctgcctcg cacaaacgcc aaagaatgat aatctctcgt cgaagcctga gtggattcat 780
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gcagaaatta cactagaaca gttacatgaa atctcacgag ggttggaaga gtcaaagtga 900
cactttttgt gggttttaag gaacaatgga gttgaactaa gtgatggatt tgaagacagg 960
gttaagaata gaggaattgt agtaaaagaa tgggttgatc aaagagagat tcttgaacat 1020
gaaagtgtaa aaggctttct aagtcattgc ggctggaatt cggtaatgga aggtatatgt 1080

```

```

gcgagggttc tgattcttgc gtggccaatg atagcggagc aacacttgaa tgcaaagatg 1140
gtgagtgaag aaataaagat tggtttgaga gttgaaacgg ttgatggaac ggcaaagggg 1200
tttgtgactg cggcgagttt gacgaaggcg gtgatggaat tgatggaggg tgagaagggg 1260
aaggaattga gggagaatgt gaagaaagtg gcgggggagc cgaggggaagc ggtggtggaa 1320
ggtggttcgt cgtggaatgg tttgaatgaa ctcatgatg aggtgtgtag gcataaggaa 1380
atgagtggta gttctaaagt tgatgaaaac aagagggaaa ttaaggatat taattaa 1437

```

<210> 32  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 32  
 cccatgggag aagaatacaa gaaa 24

<210> 33  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 33  
 ggtacctata aaatttggtg gttaaa 26

<210> 34  
 <211> 1080  
 <212> DNA  
 <213> Homo sapiens

<400> 34  
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 gtcaactggt gtcttcacgg acaaagataa ggctgctgct cacttgaagg gtggtgccaa 180  
 gaaggttgtg atctcagcac caagcaaaga tgcaccaatg tttgttgtgg gtgtcaatga 240  
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 tgcccccttt gccaaaggtca ttaatgatag atttgggaatt gttgagggcc tcatgaccac 360  
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 aggtggaaga gctgcacgt tcaacattat cccagcagc actggtgcag ctaaggctgt 480  
 tggtaaagtg ctcccagttc tcaatggaaa gctaacggga atggccttcc gtgttcctac 540  
 tgtcgatgtc tccgtagtgg acctcactgt caggctcgag aaagaggcca cttatgatga 600  
 gatcaaagct gctatcaagg aggaatccga gggcaacctt aagggcattt tgggctatac 660  
 cgaagatgat gtggtgtcaa cagactttgt tgggtgatagc cgatcaagca ttttcgatgc 720  
 caaggctgga attgcattga gcaagacgtt tgtgaagctt gtgtcgtggt acgacaacga 780  
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 ttgatcgatg atctgcttag gccgtgaagc agcttttgtc ttatcgcatc ttttctgagt 900  
 ttgtaataat gggcttttgt gttatttgca gcctaatttt gcagtttgca aatttatggt 960  
 ttttggttat gttttgctga aacctatttt attacccttt cgcgttgggt tattgaatgt 1020  
 gaactctttt tactgatgtg tttaacgttc tctcttttaa aaaaaaaaaa aaaaaaaaaa 1080

<210> 35  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 35  
 tggtgctggt aacgatccat

20

<210> 36  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 36  
 agctcttcca cctctcca

18

<210> 37  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 37  
 atgttcaaaa atoctaatat ccgc

24

<210> 38  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 38  
 ttagccatca agtcaatct tgaca

25

<210> 39  
 <211> 16  
 <212> DNA  
 <213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic primer

&lt;400&gt; 39

aacagctatg accatg

16

&lt;210&gt; 40

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic primer

&lt;400&gt; 40

gctttaccat ggagtaatga gctt

24

&lt;210&gt; 41

&lt;211&gt; 1367

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic nucleotide construct

&lt;400&gt; 41

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gtatgtatgt atgtatgcta tatacagagtc gataaagttg atcgttttca ttttcgacaa 60
atacaaacct cgtgagagaa tcttctcgat catatggcac gagcaggacc actaaccta 120
acttcgctag cgctcgagaa atcgctgcat gaaaagtta taaggagcga agacgagagg 180
cctaacttag catacagatca atttagcagt cagattccat tgatctctct ctctgggatc 240
gacgatgaat gtaataagag gaaagagctg tgcaagagaa tagcgagcgc atgcgaagat 300
tggggatatt ttcaagtgat cgatcatggg atcgatttga aactcgtaaa cgatatgact 360
cgtttggttc gtgagttctt cgatttgccc gacgaagaga agctgaggtt cgatatgtct 420
ggtgggagaa aaggagggtt cattgtttcg agccaccttc agggcgaggt ggtccaagac 480
tggcgcgaga tcgtgacctt cttcacatac cctatcaaag gccgtgacta ttccctgtgg 540
cccgacaagc ccgaggcatg gcgggccgtg acagagacct acagctcgca gctaattgtg 600
ctgggctgca aattgctagg aatcctatcc gaggcaatgg gcctcgaaa agaaagcgtg 660
accaaggcct gtctgaacat ggaccaaaaa gttgtggtca acttttaccc aaaatgccct 720
cagcccaatt tgacattggg cctgaagagg cactcggacc caggtttgat cactctgctg 780
tttcaggata acgttggcgg gcttcaagcg actcgagacg gcgggaagtc gtggatcacg 840
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aatggaaggt tcaagaacgc ggatcatcga gcggtggtga attcaaacac gaatagaatg 960
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gacgacggga agcccattat agaaaagccc atcacttatg gagaaatgta caagaggaag 1080
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gaagaagttg ttaataatgt tgaagatcat catcttaaca atgggaaaac taaataggag 1200
gttaaggtct ttaaggaaac tgacgttgct ttgtgattgt tatatattct ctatgtcgta 1260
ttcgtcttaa ggttgtcaga tgaaaatc gaccatgtta ggtatttaat ttatatgaat 1320
tgtattgcct agtcggccat attatgatta aaaaaaaaaa aaaaaaa 1367

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<210> 42  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 42  
 ttctctgtcg acgcccattg cc 22

<210> 43  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 43  
 cgccgtgtcg actcgcttga ag 22

<210> 44  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 44  
 aattatttcc caatgttcaa aaat 24

<210> 45  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 45  
 tggagcttta ggtttgtgaa a 21

<210> 46  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 46

atgggagaag aatacaagaa aac

23

<210> 47

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 47

tcttacgata aaacaaactc a

21

<210> 48

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 48

atcatcgagc ggtggtgaa

19

<210> 49

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 49

tggccgacta ggcaatacaa t

21

<210> 50

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 50

cccttctgtt tggtgaaaag cc

22

<210> 51  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 primer

<400> 51  
 cctcggattc ctccttgata gc

22

<210> 52  
 <211> 29  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 primer

<400> 52  
 cccatatata gccatggaag ataccatcg

29

<210> 53  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 primer

<400> 53  
 tagtggtgtg gagtcggggg atttcg

26

<210> 54  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 primer

<400> 54  
 aatgggatgc ttccgacttc t

21

<210> 55  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 55

cagtgtttc tgccattgct t

21

<210> 56

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic probe

<400> 56

aggaaaaaac aggctgaaaa

20

<210> 57

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 57

catcgagcgg tggatgaatt

19

<210> 58

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 58

ctggcgatgg gttttgaaa

19

<210> 59

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic probe



<400> 59  
 aaacacgaat agaatgtcg 19

<210> 60  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic primer

<400> 60  
 gaagatgacc ttgcggtgat tt 22

<210> 61  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic primer

<400> 61  
 ttgtcctctt cccctttata ggttt 25

<210> 62  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic probe

<400> 62  
 agttcgccgg gagtttcgtg agtctg 26

<210> 63  
 <211> 17  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic primer

<400> 63  
 ggttggcccg catttca 17

<210> 64  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 64  
tagaaaaccc tccggcagaa 20

<210> 65  
<211> 17  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 65  
agatggactt aaatgcg 17

<210> 66  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 66  
gcattgagca agacgtttgt g 21

<210> 67  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 67  
acgggaactg taaccccatt c 21

<210> 68  
<211> 18  
<212> DNA  
<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic probe

&lt;400&gt; 68

agcttgtgtc gtggtacg

18

&lt;210&gt; 69

&lt;211&gt; 2220

&lt;212&gt; DNA

<213> *Linaria bipartita*

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (127)..(1488)

&lt;400&gt; 69

tggacactga catggactga aggagtagaa ataccaaaag ttttcaaact ctttattgca 60

atatacttgt acaaatctac tgcaactaaa acctattatt aattatatat ataccatata 120

atagat atg gaa gat acc atc gta ttt tac act cca agc gat cac agt 168

Met Glu Asp Thr Ile Val Phe Tyr Thr Pro Ser Asp His Ser

1

5

10

caa ccc aca ata gcg ttg gca aag ttc atc agc aaa cac cac cct tcc 216

Gln Pro Thr Ile Ala Leu Ala Lys Phe Ile Ser Lys His His Pro Ser

15

20

25

30

atc tcc atg aca atc atc agc acc gcc gca ttc cct tcg tcc gca gcg 264

Ile Ser Met Thr Ile Ile Ser Thr Ala Ala Phe Pro Ser Ser Ala Ala

35

40

45

gtg ctg cct aaa aca ata agt tac cac ccc ctc ccc gcc gtg ccc atg 312

Val Leu Pro Lys Thr Ile Ser Tyr His Pro Leu Pro Ala Val Pro Met

50

55

60

ccc ccg aac ctc tcc tcc aat ccc gtg gaa ttc ctc ttc gaa atc ccc 360

Pro Pro Asn Leu Ser Ser Asn Pro Val Glu Phe Leu Phe Glu Ile Pro

65

70

75

cga ctc cac aac act aaa ctc cgc gaa gca ctc gaa aga atc tcc gag 408

Arg Leu His Asn Thr Lys Leu Arg Glu Ala Leu Glu Arg Ile Ser Glu

80

85

90

aca tca aag atc aag gcg ttg gtt atc gat ttc ttt tgc aac tcc gct 456

Thr Ser Lys Ile Lys Ala Leu Val Ile Asp Phe Phe Cys Asn Ser Ala

95

100

105

110

ttc gaa gtt tcc agg agc ttg aac att ccg aca ttc ttc gaa gcc agc 504

Phe Glu Val Ser Arg Ser Leu Asn Ile Pro Thr Phe Phe Glu Ala Ser

115

120

125

ctc ggc gcg tcc ggg ctc tgc gag ttt ctc tac cac ccg aca ttt cac 552

Leu Gly Ala Ser Gly Leu Cys Glu Phe Leu Tyr His Pro Thr Phe His

130

135

140

aaa acc gtc ccc gga gac atc gcg gac ttc aac gac ttt ctt gaa atc	600
Lys Thr Val Pro Gly Asp Ile Ala Asp Phe Asn Asp Phe Leu Glu Ile	
145 150 155	
ccg ggg tgc cct ccg ctt cac tcg gct gat gtc cct aag ggt ttg ttc	648
Pro Gly Cys Pro Pro Leu His Ser Ala Asp Val Pro Lys Gly Leu Phe	
160 165 170	
cga cgc aag act att gct tac aaa cac ttc ctc gac act gcc aac aac	696
Arg Arg Lys Thr Ile Ala Tyr Lys His Phe Leu Asp Thr Ala Asn Asn	
175 180 185 190	
atg cgg atg tcg agt gga atc ctc tta cac gcg ttc gat gcg ctt gaa	744
Met Arg Met Ser Ser Gly Ile Leu Leu His Ala Phe Asp Ala Leu Glu	
195 200 205	
tac cga gct aag gaa gct ttg tcc aac ggc ttg tgc aat ccg gac ggg	792
Tyr Arg Ala Lys Glu Ala Leu Ser Asn Gly Leu Cys Asn Pro Asp Gly	
210 215 220	
cca act ccg cct gtt tac ttt gtt tcg cct act gtg gct gaa aca ttg	840
Pro Thr Pro Pro Val Tyr Phe Val Ser Pro Thr Val Ala Glu Thr Leu	
225 230 235	
gca tac agg gaa aac acc gcc gcc ttg cgg cat gaa tgc ttg acg tgg	888
Ala Tyr Arg Glu Asn Thr Ala Ala Leu Arg His Glu Cys Leu Thr Trp	
240 245 250	
ctt gat ttg cag cct gat aaa agc gtt atc ttc ctt tgt ttt gga agg	936
Leu Asp Leu Gln Pro Asp Lys Ser Val Ile Phe Leu Cys Phe Gly Arg	
255 260 265 270	
agg gga aca ttc tcc atg caa cag ttg cat gaa att gct gtc ggt ctt	984
Arg Gly Thr Phe Ser Met Gln Gln Leu His Glu Ile Ala Val Gly Leu	
275 280 285	
gaa cgg agc ggg cga aga ttt ctc tgg gcc atc cgc agt agt ggg gca	1032
Glu Arg Ser Gly Arg Arg Phe Leu Trp Ala Ile Arg Ser Ser Gly Ala	
290 295 300	
ggg aac ggt gag cct gac ttg agc gtg gtg ctg ccg gag ggt ttc ttg	1080
Gly Asn Gly Glu Pro Asp Leu Ser Val Val Leu Pro Glu Gly Phe Leu	
305 310 315	
gag aga acc aaa gat att ggg ctg gtg ata acg aca tgg gcg ccg cag	1128
Glu Arg Thr Lys Asp Ile Gly Leu Val Ile Thr Thr Trp Ala Pro Gln	
320 325 330	
aaa gag gtg tta agc cat gtg gcc gtg tgt gga ttt gtg acg cac tgc	1176
Lys Glu Val Leu Ser His Val Ala Val Cys Gly Phe Val Thr His Cys	
335 340 345 350	
ggc tgg aac tca gtt ctc gag gcg gtg tcg ttt ggg gtt ccg atg att	1224
Gly Trp Asn Ser Val Leu Glu Ala Val Ser Phe Gly Val Pro Met Ile	
355 360 365	

ggg tgg ccg ctg tac gca gag cag agg atg aat cgg gtg ttt atg gtg 1272  
Gly Trp Pro Leu Tyr Ala Glu Gln Arg Met Asn Arg Val Phe Met Val  
370 375 380

gag gaa ata aag gtg gca ttg cct ttg gag gag gag gcg gat ggg ttg 1320  
Glu Glu Ile Lys Val Ala Leu Pro Leu Glu Glu Glu Ala Asp Gly Leu  
385 390 395

gtg agg gcg aca gaa ttg gag aag cgg gtg aga gag ttg acc gag tcc 1368  
Val Arg Ala Thr Glu Leu Glu Lys Arg Val Arg Glu Leu Thr Glu Ser  
400 405 410

gtg	agg	gga	aaa	gcg	gta	agc	cgg	cgg	gtg	gag	gaa	atg	aga	ctc	tgc	1416
Val	Arg	Gly	Lys	Ala	Val	Ser	Arg	Arg	Val	Glu	Glu	Met	Arg	Leu	Ser	
415					420					425					430	

gca gag aag gcc gtg agc aag ggt gga acg tcg ctg att gca ttg gag 1464  
Ala Glu Lys Ala Val Ser Lys Gly Gly Thr Ser Leu Ile Ala Leu Glu  
435 440 445

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aaa ttc atg gac tcg att act cta taagcgtaag agttgctata aatttagcta 1518
Lys Phe Met Asp Ser Ile Thr Leu
450

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tgttgacagg atacgtcaaa taaaccttgc tcgtattctt agatacgtat actatacaaa 1578

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tttaagtacc atcgtggaat actttttatat gagcttataa ttttaatggt gaatagattt 1878

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<211> 454

<212> PRT

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			20					25					30				
Met	Thr	Ile	Ile	Ser	Thr	Ala	Ala	Phe	Pro	Ser	Ser	Ala	Ala	Val	Leu		
		35					40					45					
Pro	Lys	Thr	Ile	Ser	Tyr	His	Pro	Leu	Pro	Ala	Val	Pro	Met	Pro	Pro		
		50				55					60						
Asn	Leu	Ser	Ser	Asn	Pro	Val	Glu	Phe	Leu	Phe	Glu	Ile	Pro	Arg	Leu		
	65				70					75					80		
His	Asn	Thr	Lys	Leu	Arg	Glu	Ala	Leu	Glu	Arg	Ile	Ser	Glu	Thr	Ser		
				85					90					95			
Lys	Ile	Lys	Ala	Leu	Val	Ile	Asp	Phe	Phe	Cys	Asn	Ser	Ala	Phe	Glu		
			100					105					110				
Val	Ser	Arg	Ser	Leu	Asn	Ile	Pro	Thr	Phe	Phe	Glu	Ala	Ser	Leu	Gly		
		115					120					125					
Ala	Ser	Gly	Leu	Cys	Glu	Phe	Leu	Tyr	His	Pro	Thr	Phe	His	Lys	Thr		
		130				135						140					
Val	Pro	Gly	Asp	Ile	Ala	Asp	Phe	Asn	Asp	Phe	Leu	Glu	Ile	Pro	Gly		
	145				150					155					160		
Cys	Pro	Pro	Leu	His	Ser	Ala	Asp	Val	Pro	Lys	Gly	Leu	Phe	Arg	Arg		
				165					170					175			
Lys	Thr	Ile	Ala	Tyr	Lys	His	Phe	Leu	Asp	Thr	Ala	Asn	Asn	Met	Arg		
			180					185					190				
Met	Ser	Ser	Gly	Ile	Leu	Leu	His	Ala	Phe	Asp	Ala	Leu	Glu	Tyr	Arg		
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Ala	Lys	Glu	Ala	Leu	Ser	Asn	Gly	Leu	Cys	Asn	Pro	Asp	Gly	Pro	Thr		
		210				215					220						
Pro	Pro	Val	Tyr	Phe	Val	Ser	Pro	Thr	Val	Ala	Glu	Thr	Leu	Ala	Tyr		
	225				230					235					240		
Arg	Glu	Asn	Thr	Ala	Ala	Leu	Arg	His	Glu	Cys	Leu	Thr	Trp	Leu	Asp		
				245					250					255			
Leu	Gln	Pro	Asp	Lys	Ser	Val	Ile	Phe	Leu	Cys	Phe	Gly	Arg	Arg	Gly		
			260					265					270				
Thr	Phe	Ser	Met	Gln	Gln	Leu	His	Glu	Ile	Ala	Val	Gly	Leu	Glu	Arg		
		275					280					285					
Ser	Gly	Arg	Arg	Phe	Leu	Trp	Ala	Ile	Arg	Ser	Ser	Gly	Ala	Gly	Asn		
	290					295					300						
Gly	Glu	Pro	Asp	Leu	Ser	Val	Val	Leu	Pro	Glu	Gly	Phe	Leu	Glu	Arg		
	305				310					315					320		

Thr	Lys	Asp	Ile	Gly	Leu	Val	Ile	Thr	Thr	Trp	Ala	Pro	Gln	Lys	Glu	325	330	335	
Val	Leu	Ser	His	Val	Ala	Val	Cys	Gly	Phe	Val	Thr	His	Cys	Gly	Trp	340	345	350	
Asn	Ser	Val	Leu	Glu	Ala	Val	Ser	Phe	Gly	Val	Pro	Met	Ile	Gly	Trp	355	360	365	
Pro	Leu	Tyr	Ala	Glu	Gln	Arg	Met	Asn	Arg	Val	Phe	Met	Val	Glu	Glu	370	375	380	
Ile	Lys	Val	Ala	Leu	Pro	Leu	Glu	Glu	Glu	Ala	Asp	Gly	Leu	Val	Arg	385	390	395	400
Ala	Thr	Glu	Leu	Glu	Lys	Arg	Val	Arg	Glu	Leu	Thr	Glu	Ser	Val	Arg	405	410	415	
Gly	Lys	Ala	Val	Ser	Arg	Arg	Val	Glu	Glu	Met	Arg	Leu	Ser	Ala	Glu	420	425	430	
Lys	Ala	Val	Ser	Lys	Gly	Gly	Thr	Ser	Leu	Ile	Ala	Leu	Glu	Lys	Phe	435	440	445	
Met	Asp	Ser	Ile	Thr	Leu											450			